THE PLANT DISEASE REPORTER

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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. The reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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CHECK LIST REVISION

Freeman Weiss

CALAMAGROSTIS (GRAMINEAE)

CALAMAGROSTIS CANADENSIS (Michx.). Beauv., BLUEJOINT. Tall perennial grass occurring throughout the U. S. except the South, north to Alaska; important source of wild hay in the North Central States. Several geographic forms, e.g. var. scabra (Presl.) Hitchc., of northerly range, are included.

Acrospermum graminum Lib., on culms. N. Y.
Anguina sp., nematode gall. Wis. Associated with twist disease, reported as ? Tylenchus tritici or other gall-forming nematodes: reference to Anguina sp. on authority of G. Steiner. Also on Calamagrostis sp., N. Y.
Ascochyta graminicola Sacc., on leaves. Wis.
Claviceps microcephala (Wallr.) Tul. and C. purpurea (Fr.) Tul., ergot. Me. to Minn., Alaska and Wash. Both spp. or forms are reported without clear distinction, the former usually more northerly.
Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. Mont., N. Dak., Ohio, Wis.
Cylindrosporium calamagrostidis Ell. & Ev., leaf spot. Wis.
Dilophosphora alopecuri Fr., twist. Wis.
Dothichloë limitata Diehl, black ring, sterility disease. Wis.
Epichloë typhina (Pers. ex Fr.) Tul., choke, cat-tail. Minn., Wis.
Erysiphe graminis DC., powdery mildew. Ohio.
Fusarium nivale (Fr.) Ces., snow mold. Minn. = Calonectria graminicola (Berk. & Br.) Wr.
Hadrotrichum lineare Pk., on leaves. N. Y., Alaska.
Helminthosporium sp., leaf spot. Minn.
Hendersonia calamovilfae Petr., on leaves. S. Dak.
Herpotrichia graminea Dearn. & House, on leaves and culms. N. Y.
Lophodermium apiculatum (Wormsk. ex Fr.) Sacc. Colo.
Mastigosporium rubricosum (Dearn. & Barth.) Sprague, red eye-spot. Mont., Oreg. Wyo., Alaska.
Phyllachora graminis (Pers. ex Fr.) Fckl., tar spot. Mich., Minn., Nebr., N. Y., Wis., Alaska.
Puccinia coronata Cda. (II, III), crown rust. General.
P. graminis Pers. (II, III), stem rust. Conn., Ohio, Wis. Var. avenae Eriks. & Henn. identified.
P. pygmaea Eriks. (II, III), leaf rust. Mich., Wis. C and I on Berberis sp. in Europe.
Rhynchosporium orthosporum Caldwell, scald. S. Dak., Wyo.
Sclerotium rhizodes Auers., leaf blight. Mass., N. H., N. J., Wis.
Scolecotrichum graminis Fckl, leaf streak. N. Dak.
Selenophoma donacis (Pass.) Sprague & A. G. Johns., var., speckle. Wis., Alaska
Septoria calamagrostidis Ell. & Ev., S. everhartii Sacc. & Syd.): Selenophoma donacis var.
Urocystis agropyri (Preuss) Schroet., flag smut. Oreg.
Ustilago calamagrostidis (Fckl.) Clint., stripe smut. Ohio, Vt., Wis., Wyo.

CALAMAGROSTIS INEXPANSA A. Gray, NORTHERN REEDGRASS. (1). Tall perennial of meadows and moist habitats occurring from Me. to Mo. and Calif., and northward; of considerable forage value. Several geographic forms are included, also C. NEGLECTA (Ehrh.) Gaertn. Mey. & Schreb. (2).

Claviceps purpurea (Fr.) Tul., and C. microcephala (Wallr.) Tul., ergot. Minn., N. Dak. (1 & 2).
Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. N. Dak.
Dothichloë limitata Diehl, sterility disease. N. Dak.
Hendersonia simplex Schroet., on leaves. Mont.
Lophodermium arundinaceum (Schrad. ex Fr.) Chev., on culms. N. Mex.
Phyllachora graminis (Pers. ex Fr.) Fckl., tar spot. Nebr.
Puccinia coronata Cda. (II, III), crown rust. (1) Mich., N. Dak., Oreg.; (2) Calif., Wyo. Var. calamagrostis Fraser & Led. (f. sp. calamagrostidis Eriks.) with O and I on Rhamnus alnifolia has been identified.
P. graminis Pers. (II, III), stem rust. Calif.
Septogloeum oxysporum Bomm., Rouss. & Sacc., char spot. N. Dak.
Stagonospora arenaria Sacc., on leaves. Minn.

CALAMAGROSTIS RUBESCENS Buckl., PINEGRASS (1); also C. MONTANENSIS Scribn., PLAINS REEDGRASS (2). Important range grasses of the Western States, the former occurring from the Pacific Coast to the northern Rocky Mountains, characteristically in pine woods; the latter in the foothills and dry prairies of the mountains and northern plains. A few records on C. PURPURASCENS R. Br., PURPLE REEDGRASS (3), growing in mountain meadows from Calif., to Colo., are included.

Cladosporium herbarum Pers. ex Lk., on leaves. Oreg., Wash.
Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. Oreg.
Lophodermium arundinaceum (Schrad. ex Fr.) Chev., on culms.
Mycosphaerella tassiana (De Not.) Johans., on culms. Colo. (3).
Puccinia coronata Cda. (II, III), crown rust. Colo., Wyo. (1, 2).
Selenophoma donacis (Pass.) Sprague & A. G. Johns. var., speckle, leaf spot. N. Dak. (2)

CALAMOVILFA (GRAMINEAE)

CALAMOVILFA LONGIFOLIA (Hook.) Scribn., PRAIRIE SANDGRASS; and C. GIGANTEA (Nutt.) Scribn. & Mey. Tall perennial grasses occurring in sandy areas of the northern prairies and plains; good soil-binders and of some value for winter forage and hay.

Cladosporium herbarum Pers. ex Lk., on leaves. N. Dak.
Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. Wis.
Fusarium scirpi Lamb. & Fautr. var. acuminatum (Ell. & Ev.) Wr., secondary root rot. N. Dak.
Helminthosporium sativum Pam. King & Bakke, root rot. N. Dak.
Hendersonia calamovilfae Petr., leaf spot. N. Dak.

CALAMOVILFA LONGIFOLIA cont.

Physalospora leptosperma Rostr., on culms. ? Colo.

Puccinia amphigena Diet (II, III), leaf rust. Widespread. O and I on Smilax spp. and Leucocrinum.

P. graminis Pers. (II, III), stem rust. Mont., Nebr., N. Dak.

Pyrenopeziza ellisii (Rehm) Massee, on culms. Mont.

Selenophoma donacis (Pass.) Sprague & A. G. Johns., leaf spot. N. & S. Dak.

Septoria calamovilfae Petr., leaf spot. N. Dak.

DIVISION OF MYCOLOGY AND DISEASE SURVEY

A SIMPLIFIED METHOD OF SECURING DATA FROM KNOWN SOURCES: A STUDY IN SAMPLING METHODS

Edgar F. Vestal

One of the problems confronting a plant pathologist in making a plant disease survey is that of finding a simple, reliable method of collecting samples and measurements where large areas are involved.

During the course of the Emergency Plant Disease Prevention survey work in Iowa in 1944, this problem was pointed out by Dr. I. E. Melhus as one that needed special consideration. The particular subject for this study was suggested by the farmers when they appealed to the County Extension Directors and members of the Iowa Agricultural Experiment Station staff for an explanation of the dislike shown by pigs, calves, and chickens for oats given them for food. Most of the complaints originated in Buena Vista, Cherokee, and Sac Counties.

In consultation with members of the Iowa Agricultural Experiment Station staff and with Mr. A. J. King of the Division of Agricultural Statistics, U. S. Department of Agriculture, a plan was developed that it was believed would secure representative samples of the grain in the areas from which the complaints had been received. Before the survey was undertaken, however, it was decided to cover as much of the entire State as time and weather would permit.

The survey was undertaken during the months of January, February, and March, and only all-weather roads, giving direct routes, were followed. Sometimes these roads led directly across a county and sometimes they crossed only a small portion. The average width of the 74 counties surveyed was 24.81 miles. The average distance traveled along the highways chosen to be followed in these counties was 25.85 miles.

Description of Sampling Method. Using the Atlas of the State of Iowa, corrected to June, 1941, published by the American Lithographing and Printing Company of Des Moines, Iowa, a tracing was made on a light weight paper of each county to be surveyed. On this tracing were indicated the highways to be followed, the land sections touching these highways, railroad crossings, main highway intersections, towns, rivers, and any points that might be of help in locating the sections to be surveyed. Beginning at the point where the county was to be entered, all sections touching the highway were numbered consecutively in the direction of travel beginning with 1. Sections on both sides of the highway were numbered at the same time. Sections divided by the highway were given only one number. Sections lying partly within city limits or within war

industry expansion areas were omitted.

It was decided to select 2 sections from each county as a minimum number upon which to base the survey. Using a set of random numbers, these sections were selected and quartered, and the quarter-sections numbered 1, 2, 3, and 4. Using a set of random numbers, the quarter-sections were also selected and in the order of selection marked 1st, 2nd, 3rd, and 4th. The quarter-section marked "1st" was the first one to be visited. If for some reason oat samples and data could not be obtained from this quarter-section, the one marked "2nd" was visited and so on. It sometimes happened that oat samples and data were unobtainable on an entire section. To compensate for this loss of samples and data, additional sections were drawn at the same time as the 2 per county originally agreed upon as the minimum number required. After the first survey trip it was found that one additional section would be required for approximately each 5 of the original sections selected.

Table 1. Percentage of surveyed farm land planted to oats and distribution of the new and old varieties in the nine crop-reporting districts of Iowa in 1943.

Crop Rep. Dist. No.	No. counties surveyed in each dist.	Total acreage	No. acres in oats.	Acres new varieties	Acres old varieties	Percent new varieties.[b]	Percent old varieties.
1	8(12)[a]	2840	406	239	167	58.87	41.13
2	6(11)	2306	413	371	42	89.83	10.17
3	9(11)	3269	449	281	168	62.59	37.41
4	11(12)	3221	561	246.5	314.5	43.84	56.16
5	11(12)	4388	532	417	115	78.39	21.61
6	7(10)	2630	413	346	67	83.78	16.22
7	8(9)	4140	722.5	529	193.5	73.22	26.78
8	9(11)	5067	426	159	267	37.33	62.67
9	5(11)	1458	151	99	52	65.57	34.43
Total	74(99)	29319	4073.5	2687.5	1386	65.89[c]	34.11[c]

Percentage of farm land in oats in 1943: 13.85
Percentage of new varieties in 1943: 65.89
Percentage of old varieties in 1943: 34.11

[a] Figures in parenthesis indicate number of counties in districts.
[b] Varieties resistant to rusts and smuts.
[c] Average percent of new and old varieties.

Counties to receive the additional sections were determined by adding together the total numbers of sections in the counties to be surveyed and dividing this sum by the total number of selections to be made. Thus, if 10 counties were to be surveyed, then 4 additional sections were added and the total number of sections chosen was 24. Assuming that the total number of sections in the 10 counties was 5520, then the measuring stick was $\frac{5520}{24} = 230$. Then, since a minimum of 2 sections was to be located in

A == Total farm acreage. B == Total acres in oats. C == Acres in new varieties
D == Acres in old varieties. 1, 2, 3, etc. == Crop reporting districts.

Figure 1. Farm and oat acreage of 146 Iowa farms in 1943.

each county, the sum of 2 x 230 was subtracted from the total number of sections in the first county to be surveyed. The remainder was carried over and added to the number of sections in the second county to be surveyed and the process repeated. When the remainder, in any county, was equal to 230, another section was selected in that county. In this way the additional sections to be surveyed were distributed proportionately to the total number of sections in the counties.

Before starting on the survey, a questionnaire, designed to secure as much of the desired data as possible from each farm, was developed and mimeographed. Information was desired on the history of the oats during harvest time and during the storage period in the bins, and on the reaction of the animals fed the oats. Additional information secured included the number of acres in the farm, the number of acres planted to oats in 1943, and the variety. Only the last 3 items have been included in Table 1, and only the total farm acreage and the acres planted to oats in 1943 on the farms surveyed have been selected to illustrate the value of the sampling method.

The survey covered 74 counties divided among the 9 Crop Reporting Districts as shown on the map (Figure 1). The survey was slowed up by bad weather, and was discontinued in early April owing to the pressure of other work.

The actual surveying time was 18 days, which is slightly over 4 counties a day. From the experience gained in this survey it is believed that it would be possible to survey the entire State, during good weather, in a little over 20 days actual surveying time.

Accuracy of Data secured. The total number of farms surveyed, from which data were secured, was 149. Only data from 146 farms are shown in Table 1, as the varieties of oats grown on 3 of the farms in 1943 could not be learned. These data indicate that approximately 2/3 of the Iowa farmers grew the new rust- and smut-resistant varieties of oats in 1943.

According to the data secured, in 1943 13.85% of the land on the 146 Iowa farms surveyed was planted to oats. The Iowa Assessors Annual Farm Census secured a figure for the same period of 13.2%, a difference of 0.65%. When the acreage of the 3 farms for which oat variety data were not secured is added, the acreage of the surveyed farms planted to oats in 1943 becomes 13.75%. Thus the survey of 149 farms located on quarter-sections selected at random along all-weather roads in 74 counties yielded a figure for the percentage of farm land planted to oats in 1943 that was within 0.55% of that secured from a survey of several thousand farms in all counties of the State by the Iowa Assessors Annual Farm Census. It appears reasonable to assume that if all of the counties in Iowa are surveyed in this manner the data secured will be in approximate agreement with those which would be secured by the Iowa Assessors.

It is recognized that this type of sampling has its limitations, but where the location of warehouses, elevators, bins, or other specific objects is known, the labor of securing representative samples may be reduced very considerably. The resulting data will be within the permissible error of the most exact figures obtainable. The method and results of the survey are offered in the hope that they may be of value to others having similar problems.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

CONTROL OF SOFT ROT OF FRESHLY WASHED AND WAXED, UNCURED SWEETPOTATOES DUE TO RHIZOPUS NIGRICANS: A PRELIMINARY REPORT

G. K. Parris

In 1943 the attention of growers and packers on the Eastern Shore of Virginia was focused on the soft rot disease of sweetpotatoes caused by the fungus Rhizopus nigricans Ehrb. Freshly harvested, washed and waxed sweetpotatoes, mostly of the variety Maryland Golden, but also of Puerto Rico, and the Big- and Little-Stem Jerseys, were rotting enroute to market, or soon after reaching the wholesale dealers, that is, within 4 to 10 days from time of shipment depending on the destination and method and facility of transportation. Losses were running into thousands of dollars daily during September and October and help was requested from this station. A survey of 4 packing plants revealed several possible causes of the rot, namely inadequate washing away of the soil on the roots as brought from the field, plus an inordinate amount of seemingly unnecessary bruising of the skins of the potatoes as they moved through the washing, waxing, and packing processes. To test the theory that the presence of dirt was largely responsible for the rot, 10 bushels of potatoes were taken, divided into half, 5 bushels were thoroughly washed free of all dirt while the remaining 5 bushels were "indifferently washed", leaving a thin film of dirt on all roots corresponding to what had been encountered in the commercial packing plants. Three bushels in each class were severely bruised, the other 2 left uninjured. Stored at a temperature and humidity optimum for development of Rhizopus, within 10 days the roots that had been poorly washed were severely rotted, while those well washed had less than 5% rotted. Wounding the sweetpotato had no influence on rotting provided the root had been well washed. In other words, the rot could not develop if the organism was not present.

This brief test had a considerable effect on the thoughts of those in charge of the packing plants, and during the winter and summer of 1944 they installed equipment that gave better facilities for washing, with more water at higher pressures, and also endeavored to eliminate mechanically some of the unnecessary jarring and dropping conducive to bruising the roots in 1943. In 1944 they had no rot problem.

To study the problem further, the writer made a number of preliminary tests in the laboratory during the winter of 1944 and this fall he carried out an extensive series of tests designed to determine further the value of certain chemicals in the control of Rhizopus rot. The data obtained will not be presented in detail here, but findings so far are merely enumerated for the benefit of those who may have a similar problem in disease control.

In laboratory trials pieces of sweetpotato root were dipped in spore suspensions of R. nigricans or in comparable spore suspensions to which were added commercial waxes, or waxes plus chemicals. The treated and untreated pieces of root were kept at optimum humidity and temperature for development of the disease. Findings briefly were: (1) that United States Rubber Co.'s No. 604 possesses definite fungicidal action against Rhizopus, and (2) that results from such small scale tests, even with pieces of tissue from the same root or the same basket of roots, often could not be duplicated and their use would lead only to erroneous conclusions. Stored

sweetpotatoes of different physiological maturity than freshly harvested ones could therefore not be used and work was stopped until the fall of 1944.

From September to November 1944, tests were conducted on a larger scale, with at least one, more usually 2 or 3 bushels of sweetpotatoes per treatment, and 18 to 30 bushels in each experimental set-up. Eight such set-ups were run during the sweetpotato season, and a total of 181 bushels were studied. The roots used were washed by a packing plant, then collected by hand from the endless belt before the roots were waxed, and placed in baskets to be transported to the laboratory for further treatment in various ways. After treatment the sweetpotatoes were stored in a barn where they were kept for the duration of the tests. Seven to ten days after treatment, which consisted of dipping the roots in various chemicals, with or without the introduction of wax and/or the fungous spores, the treated sweetpotatoes were examined for the presence of rot, all rotted roots removed, and the healthy ones replaced. A second examination was given a week later, and then the sweetpotatoes were discarded. When more than one bushel was used per treatment, one bushel would receive the 2 examinations described above, while the rest would be examined but once, at the second examination. From this it was soon learned that the additional handling of 2 examinations did not increase the rotting as compared with one handling, probably because the rotting or rotted sweetpotatoes were removed. It is a well-known fact that R. nigricans will spread through a basket of sweetpotatoes from a single focal point of one or two diseased potatoes.

Daines[1] has reported that borax (2.5%) will give good control of soft rot of cured sweetpotatoes caused by species of Rhizopus, particularly R. nigricans. Even though the use of this chemical on sweetpotatoes is discouraged at present by the Pure Food and Drug Administration, its value was studied here, comparing it with No. 604. Borax (2.5 or 2.0%) as an instantaneous dip, with or without wax, causes serious burning of the tender skin of uncured, freshly washed sweetpotatoes. This injury has been noted on Maryland Golden, Puerto Rico, Big-Stem and Little-Stem Jersey. It appears in 4 to 5 days after dipping and is characterised by a raising of the skin of the root in hemispherical areas ranging in size from 1/8 to 1/2 inch in diameter. Beneath the blister-like lesion the plant cells are pale to dark brown and oedematous. The lesion is relatively shallow and secondary organisms have not been seen to enter thereby. In physical appearance sweetpotatoes that have been dipped in borax have a low sales appeal.

Injury from borax was unexpected and is unfortunate, for the borax is compatible with the 2 waxes tried, and the dip (2.5 or 2.0%) is unsurpassed as a fungicide for the control of R. nigricans. Even though a heavy spore suspension be incorporated with the borax solution, sweetpotatoes dipped therein rot but little, whereas roots dipped in a comparable spore suspension without borax are rotted, immediately and appreciably. Borax-treated roots have been retained for over a month; they did not have a favorable appearance at the end of the test, but they had not rotted.

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[1] Daines, Robert H. Soft rot of sweetpotatoes and its control. New Jersey Agric. Expt. Sta. Bull. 698: 1-14. 1942.

United States Rubber Co.'s No. 604 will also give control of Rhizopus rot, but it is not the equal of borax. It has given satisfactory control at 1-1000 concentration, fairly good at 1-2500 concentration, and less control at 1-5000 and 1-10,000 concentrations. Commercially it probably should be used at the 1-1000 rate, but further work may reveal that this concentration could be reduced. No. 604 does not burn and is compatible with the commercial waxes that have been tried. The waxes themselves seem to have no fungicidal action against the soft rot fungus under the experimental conditions of the tests.

VIRGINIA TRUCK EXPERIMENT STATION, NORFOLK, VIRGINIA

STORAGE DISEASES OF SWEETPOTATO

Reports are of Emergency Plant Disease Prevention surveys:

SWEETPOTATO STORAGE DISEASES IN DELAWARE: Two sweetpotato storage houses near Felton, Delaware, and 3 near Laurel, Delaware, were visited during the last half of November. These houses are heated by coal stoves so that the temperature is not closely regulated. Sweetpotatoes are mostly stored in bushel baskets, a few are in bins. Varieties in storage are Big Stem Jersey, Little Stem Jersey, and Porto Rico.

A negligible amount of Black Rot (Ceratostomella [Endoconidiophora] fimbriata) and of Soil Rot or Pox (Actinomyces ipomoeae) is present. Only one root affected by Scurf (Monilochaetes infuscans) was seen.

The chief storage diseases are Soft Rot (Rhizopus nigricans) and Surface Rot (Fusarium oxysporum). It is difficult to get a true picture of the Soft-Rot situation, it being complicated by the length of time the roots have been in storage (local sweetpotatoes have been harvested a month or 6 weeks, but some 12,000 bushels of the variety Porto Rico, grown in North Carolina, have been in storage only a few days) and the variable time that may elapse before repacking and marketing, as well as by the none-too-well regulated temperature and humidity of the houses. The following summary indicates fairly closely the soft rot now present:

Variety	Percentage of roots showing soft rot	Source	Time in Storage	Bushels in Storage
Little Stem Jersey	15%	Local	4 to 6 weeks	10,000
Big Stem Jersey	5%	Local	4 to 6 weeks	1,000
Porto Rico	10 - 20%	Local	4 to 6 weeks	1,500
Porto Rico	none to 10%	North Carolina	Several days	12,000

Some of the North Carolina sweetpotatoes were just arriving from the field and these were the ones in which no Soft Rot was observed. One small lot of Little Stem from one grower showed 50% loss by Soft Rot following a Dry Rot entering the root from the stem end and apparently due to a species of Fusarium.

Surface Rot was absent or affecting less than 1% of the roots in the variety Porto Rico, whether local or Carolina-grown. About 15% of the Little Stem variety and about 25% of Big Stem showed Surface Rot. In one small lot of Nancy Hall, stored for table use, every sweetpotato seen was badly damaged by Surface Rot.

Growers report a great deal of damage by bruising due to inexperienced help in harvesting. This was especially evident in the 2 Jersey varieties. -- A. J. Mix

SWEETPOTATO STORAGE ROTS IN INDIANA AND ILLINOIS: Sweetpotatoes in 11 storage houses in Knox and Gibson Counties, Indiana, and in Union County, Illinois, were inspected for storage rots during the week ending December 2. These storages varied in capacity from 1000 to 30,000 bushels. Potatoes were being brushed and packed in baskets for market. The roots were inspected as they passed over the graders, and individual baskets of other lots in storage were also examined. In 3 houses, no sweetpotatoes were being graded but discards from previous "runs" were gone over and storage baskets sampled.

In Knox County, Indiana, where the Yellow Jersey is grown, Soft Rot (and Ring Rot), caused by Rhizopus spp., was responsible for losses of from 1 to 3%. Occasional sweetpotatoes were observed with Surface Rot, Soil Rot (Actinomyces sp.) and Dry Rot (Diaporthe batatatis). No Black Rot was observed or reported in this district. However, it is no doubt present. For some years the growers in this area have been treating their stock with corrosive sublimate prior to seeding. Growth Cracks (physiological) were present on 13% of the roots in one lot of 130 bushels.

At Johnson and Poseyville, Indiana, in Gibson County, Soft Rot ranged from 0.5% to 2%, varying in the different lots. In addition to traces of the rots found in Knox County, Black Rot, Charcoal Rot (Sclerotium bataticola), and Mottle Necrosis (Pythium sp.) occurred as a trace.

In Union County, Illinois, Nancy Hall, Porto Rico, and Yellow Jersey varieties are grown. Although sweetpotatoes in storage houses at Anna, Cobden, and Dongola were, in general, of excellent quality, traces of the rots already mentioned were observed. End Rot (Fusarium spp.) was present as a trace. Scurf was also observed on 1% to 2% of the roots in several lots at both Cobden and Anna. Little Soft Rot was seen. Black Rot occurred as a trace in almost all lots and ran as high as 3% in some. One buyer-packer mentioned that in several batches as many as 20% of the sweetpotatoes had Black Rot lesions and that in some fields, losses ran as high as 75%.

Although some of the growers in Union County had practised seed treatment in addition to seed selection for a number of years, and had practically eliminated Black Rot, this season the disease made a reappearance. It is known that the discarded roots at the packing houses are often fed to hogs and occasionally cattle. It is possible manure from such animals was used for hotbeds or seedbeds, thus infecting the young plants. -- J. S. Tidd.

ONION STORAGE CONDITIONS IN THE SNAKE RIVER VALLEY

Earle C. Blodgett

The two-weeks period November 20 to December 2 was spent in the Snake River Valley from Ontario, Oregon (Malheur County) and Weiser, Idaho, to Aberdeen, Idaho where a great many onion storages were examined: Neck Rot (Botrytis allii) was the predominant disease observed in the onions.

Following a rather normal crop of onions with the ceiling prices prevailing in 1943, the farmers in the area went all out for onions in 1944 and produced an immense crop. The spring season was unfavorable since some of the very early seedings dried out and died, necessitating replanting, and the later seeded fields were so injured by very rainy, cold weather that growth was retarded. In addition, onions were planted in new areas in large acreages, and often these growers lacked knowledge and experience in onion growing, harvesting, and handling. Furthermore, the rather late spring and cool summer at these high altitudes prevented proper maturity, a point which is of very great significance in the storage life of onions this year.

As pointed out in the report last year (PDR Suppl. 149: 400-407, 1944) on onion diseases, the question of providing proper storage facilities has been sadly neglected. This year some new storage space was provided, but insufficient by far for even a normal crop.

Evidence from observations and from authentic reports shows that several hundreds of acres were left unharvested this year because of market and storage conditions. Some fields were "sheeped off", some will be left for seed, and many were destroyed. Storages of every description were being utilized all over the area: garages, old laundry buildings, barns, fruit warehouses, National Guard buildings, fair ground buildings, potato cellars, and some canvas shelters. Sorting equipment and help could not handle the large crop, and onions stored in poor, crowded conditions rotted heavily.

The harvest season, although one of the best from the weather standpoint that has been experienced, was so long that some onions were rained on and some were frozen in the fields. Many fields were topped before the plants had matured and generally these bulbs broke down rapidly.

Many cases were observed where heavy field fertilization seemed to favor Neck Rot, and especially was this seen in lots of very large onions. One 50-pound bag contained only 29 onions, and the sorting crew had continual difficulty with the machinery which was not built for such large bulbs. There seemed to be a tendency for the rot to be more prevalent in onions grown on "old" ground.

Another factor involved this year was that contracts for the dehydrator called for white bulbs and these types usually rot earlier than the yellow onions.

In all the storages observed only one showed excellent keeping conditions. This was a well ventilated dirt floor cellar where the onions were stored in 50-pound mesh bags on racks. The bulbs had been sorted before storing.

In most of the storages the sorting crews reported slight to very severe losses. In one typical storage, the crew would run culls and pick the good ones for a while and then shift over and run good ones and pick out the culls. While it is impossible to fix a figure for the amount of loss from Neck Rot, it frequently ran from 25 to 50%. Different lots varied widely and some were a total loss and found their way to huge cull piles out on the desert. Of course, this does not necessarily mean that every onion in these lots was rotted, but in the face of high labor costs, comparatively poor prices and the high sort-out, the grower made money by not trying to save the onions.

Botrytis allii was the fungus most commonly present, and Sour Skin was frequently encountered.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

STUDIES ON THE CONTROL OF BEET RUST IN OREGON

P. W. Miller and F. P. McWhorter

In 1943, rust (Uromyces betae) was very prevalent in many fields of table and sugar beets in Western Oregon. Since the disease developed late in the fall, beets grown for canning were damaged only slightly while those grown for seed were injured more, because of partial defoliation of the latter. The rust was not generally so prevalent in 1944 but was noticeable in certain localities.

The presence of this rust in our local seed-beet plots during both these years permitted us to carry on control tests. The new dust for roses reported by Massey[1], having locally proved effective against rose rust, was chosen for trial. The dust used consisted of 12% Fermate (ferric dimethyl dithiocarbamate), 48% dusting sulfur and 40% inert ingredients. Six applications of this dust were made at 7- to 10-day intervals beginning the last week in April when the disease was first noticed. The results of this experiment are given in Table 1.

Table 1. Results of experiments on the control of beet rust. Corvallis, Oregon, 1944.

Treatment	Number of leaves examined	Leaves infected		Leaves infected with 10 or more lesions		Average number of lesions per leaf infected
		No.	%	No.	%	
Not treated	60	59	98.3	56	93.3	138.2
Fermate-Sulphur (12-48) dust*	59	32	54.2	10	16.9	10.0

* Six applications made at 7- to 10-day intervals beginning April 26.

It is evident from these results that the use of this dust reduced the incidence of infection appreciably. Further experiments are planned to determine the correct timing and minimum number of applications necessary for commercial control.

DIVISION OF FRUIT AND VEGETABLE CROPS AND DISEASES, U. S. BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING, and OREGON STATE COLLEGE, CORVALLIS, OREGON

[1] Massey, L. M. "Fermate", a promising new fungicide. Amer. Rose Mag. 5: 108-109. 1943.

TWO UNDETERMINED TROUBLES OF CAULIFLOWER IN DELAWARE

A. J. Mix

Examination was made of cauliflower fields in the vicinity of Dover, Delaware, during the latter part of November. This is of some local interest since 2 growers have moved into the area from Long Island and are producing cauliflower on land which has never grown a cruciferous crop. These growers grew part of their plants from seed and obtained the rest from Long Island. Complete fertilizer with added boron was applied, a ton per acre, drilled in between the rows in such a manner as to keep it from contact with the plants. The crop was excellent and, for the most part, disease-free.

Two troubles were observed which have not been diagnosed. In part of one field about 25% of the plants had remained small and failed to head, and were decaying with soft rot. Vascular discoloration was evident extending down the stem from the soft-rotted area but never so far as the roots. Microscopic examination revealed no fungus, and the only organism obtained (by Dr. Lindsay S. Olive) was Erwinia carotovora. Plants for this part of the field had been grown from seed, bought as "treated", in the grower's own seed-bed; in the remainder (and healthy) part of the field plants obtained from Long Island were used. The plants in the seed-bed had been slow of development and this part of the field (now containing the diseased plants) was planted about 2 weeks later than the rest. No difference in character of soil was apparent.

The second trouble is of minor importance, occurring in somewhat less than 1%. Affected plants are found scattered throughout all parts of the fields, mostly as isolated plants surrounded by healthy and vigorous plants. Dr. T. F. Manns has suggested the name "cauliflower proliferation". The plant remains small and fails to head but usually produces several large leaves which show some rugosity and rolling of margins. A very large number of adventitious shoots arise from the underground part of the stem, originating near or even among the roots (sometimes the number of roots seems to be increased). Some of these shoots may emerge, giving the effect of a cluster of young plants, others remain below ground and are somewhat thickened and distorted, with "bent necks". A few of them decay with a soft rot. Small wart-like protruberances occur on some of the roots. These show microscopically a mass of enlarged and loosely arranged cells such as may occur in enlarged lenticels. No organism is observable in these warts nor in any other part of the plant nor is any discoloration to be found in stem or roots.

This trouble has been discussed with Dr. Manns and also with Dr. Charles Chupp. They and the writer are in agreement that it does not show any characteristics of whiptail nor of any of the known mineral deficiencies of cauliflower. Since the growers stated that they had commonly seen this trouble on Long Island, a photograph and inquiry was submitted to Dr. H.S. Cunningham at Riverhead. He has replied that he is familar with the trouble, is satisfied that no organism is involved, and is inclined to ascribe it to some injury (perhaps caused by insects) to the terminal bud.

EMERGENCY PLANT DISEASE PREVENTION PROJECT.

SUSCEPTIBILITY OF SORGHUM VARIETIES TO MACROPHOMINA DRY ROT (CHARCOAL ROT)

D. E. Hoffmaster and E. C. Tullis

Macrophomina dry rot, more commonly known as Charcoal Rot, is a common and destructive plant disease throughout the warm-climate regions of the world. In the United States it has been reported from 27 States, being found mostly throughout the southern half of the country, but does occur as far north as Illinois and Indiana and has been recorded from Douglas County, Oregon. The disease appears to be particularly destructive in the Southwest, perhaps owing to the fact that plants which are growing under adverse environmental conditions, such as drought or high temperatures, frequently are more susceptible to the disease.

The disease is known to occur on a wide variety of commercially important plants, such as corn, cotton, sorghum, cowpeas, alfalfa, soybeans, sweetpotatoes, white potatoes, and many others.

In the case of sorghums the disease usually does not become evident until the host plant approaches maturity, at which time diseased plants may be detected because of their premature drying, poor yield of inferior quality grain, and a pronounced tendency to lodge. This lodging is due to the weakened condition of the stalk of the diseased plant at or near the ground level. The moderate pressure created by pinching an internode near the ground with the fingers is sufficient to collapse the stem of a diseased plant while the firm stem of a healthy plant is unaffected by such treatment. Owing to this weakened condition of the lower stem, plus the weight of the ripening head of grain, the stalk is more easily blown over during periods of high wind.

If the stem of a diseased plant is split longitudinally the reason for this weakened condition becomes apparent. The pith and cortex of the lower portion of the stem are absent. Only the weakened outer shell remains to support the plant. This condition may extend up the stem for several nodes and sometimes down into the main roots. The fibrovascular bundles, separated from one another, remain suspended in the hollow stalk. These bundles are conspicuously and profusely dotted with small black specks--the sclerotia or resting bodies of Macrophomina phaseoli (Maubl.) Ashby, more commonly known in the sclerotial stage as Sclerotium batatícola Taub.

This is a soil-inhabiting fungus which is able to live saprophytically on the organic matter in the soil for many years. The sclerotia, which are formed abundantly in the soil or within the tissues of diseased plants, serve to tide the fungus over periods of adverse growing conditions such as severe cold of winter or prolonged hot, dry periods of midsummer.

All observations so far tend to confirm the conclusion that crop rotation, seed treatment, and many of the other routine disease control practices are of little direct value in checking this disease. Indirectly, any cultural practice that increases the vigor of the plant may lessen the loss from the disease. However, evidence is accumulating that indicates that not all varieties of sorghums are equally susceptible, and, what is more important, that these differences in susceptibility are heritable. It was with this thought in mind that a study was made of the susceptibility to Macrophomina dry rot of 232 sorghum varieties and strains.

Table 1. Approximate percentage of plants attacked by Macrophomina Dry Rot (Charcoal Rot) in sorghum plantings at 3 experiment stations in Oklahoma and Texas, 1940 to 1943, inclusive

Variety[a]	Woodward								Perkins				Chillicothe		
	1940[b]		1941[b]		1942[c]		1943[c]		1942[c]		1943[c]		1942[d]	1943[d]	1943[e]
	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thin	Thin	Thin
Milo															
Pythium Res. Ts. 276	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
" " Ts. 261	8	0	-	-	-	-	-	-	-	-	-	-	-	-	-
" " Ts. 332	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
" " Ts. 338	0	0	8	2	0	0	#	0	40	#	100	10	30	30	2
" " Ts. 516	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
" " Ts. 560	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-
Finney CI 1089	0	0	8	8	0	0	#	0	-	-	-	-	-	-	-
Dwf. Yellow C. I. 332	0	0	2	8	0	0	20	10	-	-	-	-	-	-	-
Dwf. White C. I. 627	2	0	0	20	0	0	10	0	-	-	-	-	-	-	-
Dwf. White F. C. 8927	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
Do. Dwf. White	2	2	2	8	0	0	0	0	-	-	-	-	-	-	-
Do. Dwf. Yellow C.I. 868	0	0	8	8	-	-	-	-	-	-	-	-	-	-	-
Do. Dwf. Yellow Ts. 25242	-	-	-	-	0	0	0	0	-	-	-	-	-	-	-
Do. Dwf. Yellow F.C. 8963	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
Sooner F. C. 8975	20	20	2	8	0	40	90	70	-	-	-	-	-	-	-
" Lubbock Strain	2	2	0	0	0	10	20	10	-	-	-	-	-	-	-
" C. I. 917	8	8	0	0	0	0	60	40	-	-	-	-	43	-	7
" G. C. 38M241	2	0	0	0	0	0	70	20	60	#	100	10	-	-	-
" S. A. 5043-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Early White C. I. 480	2	2	0	0	0	0	20	60	-	-	-	-	-	-	-
Std. Yellow C. I. 234	0	2	2	0	0	0	0	0	-	-	-	-	-	-	-
Std. White C. I. 352	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-
Day C. I. 959	8	0	0	8	0	10	60	40	-	-	-	-	-	-	-
Pygmy C. I. 1010	8	0	0	0	0	0	0	0	-	-	-	-	-	-	-
Colby C. I. 1118	20	8	0	0	0	0	40	0	-	-	-	-	-	-	-
480 x 332-51	8	0	0	0	0	0	30	0	-	-	-	-	-	-	-
Waxy Milo SA 5053-5-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2

Variety[a]	Woodward								Perkins				Chillicothe		
	1940[b]		1941[b]		1942[c]		1943[c]		1942[c]		1943[c]		1942[d]	1943[d]	1943[e]
	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thin	Thin	Thin
Milo Kafir Derivatives															
Custer C. I. 919	8	0	2	0	0	0	10	0	-	-	-	-	-	-	-
Beaver C. I. 871	2	0	0	0	0	0	20	0	-	-	-	-	-	-	8
Beaver G. C. 38278	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
Beaver Dal. 255	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K x M 8-2-6 C. I. 1090	0	0	0	0	0	0	0	0	10	0	0	0	-	-	-
K x M 38-1-2-1 C. I. 970	2	0	0	0	0	0	0	0	-	-	-	-	-	-	-
Club x Day La. 38-16	-	-	2	-	-	-	20	0	60	0	10	0	-	-	-
" x " La. 38-50	-	-	8	0	-	-	-	-	-	-	-	-	-	-	-
" x " La. 38-65	-	-	0	0	0	0	10	0	0	0	0	0	-	-	-
" x " La. 38-82	-	-	0	0	0	0	10	0	50	10	0	10	-	-	-
" x " La. 38-107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Plainsman SA 7005	-	-	-	-	-	-	-	-	-	-	0	0	-	-	2
Caprock SA 7000	-	-	-	-	-	-	-	-	-	-	0	0	-	-	0
Martin's Combine milo SA 5330	-	-	-	-	-	-	-	-	-	-	10	0	-	-	2
Westland GC 38296	-	-	-	-	-	-	-	-	-	-	10	0	-	-	21
Desert Maize	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-
Manko FC 8991	0	0	-	-	0	0	0	0	20	0	0	0	-	0	-
Smith's milo x kafir CI 808	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-
Fargo CI 809	0	0	0	0	0	0	0	0	0	#	0	10	-	-	-
Altland's	0	0	2	0	0	0	0	0	0	0	0	0	-	-	-
Higgins	0	0	0	0	0	0	0	0	0	10	10	0	-	-	-
Sweet	2	2	0	0	0	0	0	0	70	60	0	0	-	-	-
Bishop kafir CI 814	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-
Algeria FC 8990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
D.White miloxbh.kafir SA 251	-	-	-	-	-	-	-	-	-	-	-	-	-	-	89
Yellow kafir SA 5129-7-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Maziola SA 294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Wheatland CI 918	20	8	8	0	0	0	30	0	-	-	-	-	-	-	44
Wheatland FC 16212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
Wheatland Dal 252	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
Wheatland GC 43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45
918 x 332 -1-2	8	20	2	0	0	0	10	30	-	-	-	-	-	-	-
918 x 332 -8-6	8	20	0	2	0	10	30	30	-	-	-	-	-	-	-
Quadroon CI 1091	20	20	0	0	0	0	20	40	0	20	0	0	-	-	0
Res. Quadroon SA 1327-2-13-3	2	2	0	0	0	0	0	0	0	0	0	0	-	11	0
Kalo CI 902	2	8	0	0	0	0	0	0	10	#	10	0	-	-	-
Early Kalo CI 1009	2	2	0	0	0	0	0	0	-	-	-	-	-	-	-
628 x 332 12-1	2	0	20	0	0	0	40	0	-	-	-	-	-	-	-
696 x 332															

Variety[a]	Woodward								Perkins				Chillicothe		
	1940[b]		1941[b]		1942[c]		1943[c]		1942[c]		1943[c]		1942[d]	1943[d]	1943[e]
	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thin	Thin	Thin
Feterita															
Early	8	2	2	0	0	30	10	0	20	#	-	-	-	-	-
Dwf. 1 CI 867	2	0	0	0	10	30	0	0	-	-	-	-	-	-	-
" 3	2	0	0	0	10	40	0	0	-	-	-	-	-	-	-
" 6	8	8	0	0	10	0	10	0	-	-	-	-	-	-	-
" 623 x 867-4	8	2	0	0	0	0	0	0	0	0	0	0	-	-	-
" CI 810-1	2	2	0	0	10	0	0	0	0	0	0	0	-	-	-
Spur CI 623	0	2	0	0	0	10	10	0	40	20	0	0	-	-	0
Spur FC 6601	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Standard CI 182	8	2	0	0	0	0	0	0	40	#	20	70	-	-	0
" CI 745	0	20	0	0	0	10	0	10	0	#	0	0	-	-	-
" CI 749	2	20	0	0	30	0	10	0	0	#	0	0	-	-	-
" CI 693	20	20	0	0	0	0	0	0	30	70	0	0	-	-	-
" FC 346	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
" FC 811	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Red CI 693-R	0	2	0	0	0	0	0	10	0	40	10	20	-	-	-
Cache La 38-210	-	-	0	0	0	0	0	0	0	0	0	0	-	-	0
White CI 755	0	0	0	0	0	0	0	0	30	#	0	0	-	-	-
Durra															
Ea. Dwf. Wh. SPI 57045	2	0	0	0	0	0	10	0	-	-	-	-	-	-	-
White CI 81	8	2	0	0	0	0	10	0	40	#	-	-	-	-	-
California White	2	0	2	0	0	0	20	10	80	#	40	10	-	-	61
Dwf. White CI 950	2	0	0	0	0	0	0	0	-	-	-	-	-	-	-
" " CI 977	8	2	0	0	0	0	10	10	-	-	-	-	-	-	-
Bonar	0	8	0	0	0	0	0	0	10	40	0	0	-	-	-
"Chicken Corn"	8	2	0	0	0	0	10	0	10	20	20	0	-	-	-
Red CI 935	2	2	8	0	0	0	10	0	20	30	20	20	-	-	-
Brown CI 104	2	2	20	0	0	10	0	0	10	20	-	-	-	-	-
Kashakashi SPI 14746	0	0	0	0	0	0	0	0	0	30	0	0	-	-	-
Corneous CI 695	0	2	0	0	0	0	0	0	10	30	0	20	-	-	-
Pig-nose CI 696	2	20	0	0	0	0	40	0	50	60	0	10	-	-	-
Bonar x D. Y. milo SA 1343	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0

Variety [a]	Woodward								Perkins				Chillicothe		
	1940[b]		1941[b]		1942[c]		1943[c]		1942[c]		1943[c]		1942[c]	1943[d]	1943[e]
	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thin	Thin	Thin
Kaoliang															
Blackhull CI 310	8	20	0	0	0	0	40	20	30	30	20	10	-	-	-
White CI 636	0	0	0	0	0	0	0	0	10	#	0	0	-	-	-
" CI 792	0	0	0	0	0	0	0	0	20	#	0	0	-	-	-
" SPI 46676	8	2	0	0	0	0	0	10	-	-	-	-	-	-	-
Shantung CI 293	8	2	2	0	0	0	20	0	60	#	0	0	-	-	97
Early CI791	8	2	0	2	0	0	10	0	20	#	30	20	-	-	-
Manchu CI 171	8	0	0	8	10	20	0	0	-	-	-	-	-	-	51
Valley CI 309	8	8	0	0	0	0	0	0	-	-	-	-	-	-	-
Brown SPI 46677	20	0	0	0	0	0	10	0	40	30	40	10	-	-	-
Broom CI 799	8	0	0	0	0	0	0	0	-	-	-	-	-	-	-
Kafir															
Standard CI 71	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Blackhull CI 204	8	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Weskan CI 117	8	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Western Blackhull CI 906	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Western x Day La 1938-162	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Texas Blackhull CI 865	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0
Sharon CI 813	0	0	0	0	0	0	0	0	10	10	0	0	-	-	-
Santa Fe 1	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Reed CI 628	0	2	0	0	0	0	0	0	0	0	0	0	-	-	-
Hydro CI 1023	0	0	8	0	0	0	0	0	0	0	0	0	-	-	-
Sol	0	0	0	0	0	0	0	0	0	10	0	0	-	-	-
Pearl	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Rice	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Corneous	0	2	0	0	0	0	0	0	70	40	0	0	-	-	-
Wonder CI 872	8	8	0	0	0	0	0	0	60	10	0	0	-	-	-
Club CI 901	0	0	0	0	0	0	20	0	40	0	0	0	-	-	-
Club FC 16208	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Pierce	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
Dawn CI 340	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Sunrise CI 472	0	0	0	0	0	0	0	0	10	10	0	0	-	-	-

Variety[a]	Woodward								Perkins				Chillicothe		
	1940[b]		1941[b]		1942[c]		1943[c]		1942[c]		1943[c]		1942[d]	1943[d]	1943[e]
	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thin	Thin	Thin
Kafir (Cont'd)															
Waxy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Marum CI 566	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-
White CI 370	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
White African CI 663-II	0	0	0	0	0	0	0	0	0	10	0	0	-	-	-
Pink CI 432	0	0	0	0	0	0	0	0	10	30	0	0	-	-	-
Buckskin	-	-	-	-	0	0	10	0	0	0	0	0	-	-	-
Red KS 1767	2	0	0	0	0	0	0	0	10	0	0	0	-	-	-
Early Red CI 866	0	0	0	0	0	0	0	0	0	10	0	0	-	-	-
Sedan Red CI 1103	8	2	0	0	10	0	20	10	20	10	10	20	-	-	0
Meade Red	-	-	-	-	-	-	-	-	10	0	-	-	-	-	-
Red 37M133	-	-	-	-	-	-	-	-	10	0	-	-	-	-	-
Red CI 34	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Tall Red 7	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Tall Mutant White	0	0	0	2	0	0	0	0	0	20	-	-	-	-	-
Dwf. " Red	0	0	0	0	0	0	0	0	10	0	-	-	-	-	-
Dwf. Bishop	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-
Dwf. Hydro	20	20	0	0	0	0	20	0	40	0	-	-	-	-	-
Dwf. kafir Wd. 2443	-	-	-	-	-	-	-	-	10	10	10	0	-	-	-
Dawn x (K. C. x milo)	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Witchweed Resistant	-	-	0	0	0	0	0	0	0	0	0	0	-	-	-
Sorgo															
Atlas CI 899	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0
Norkan HC 381	8	2	0	0	0	0	0	0	0	0	0	0	-	-	-
Wild Amber	2	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Early Amber	8	8	0	0	0	0	0	0	20	10	10	20	-	-	-
Chinese Amber FC 8728	-	-	-	-	-	-	-	-	-	-	-	-	-	-	T
Black Amber FC 7038	8	0	0	0	0	0	0	0	0	0	10	0	-	-	-
Red Amber FC 9092	20	20	0	0	0	0	0	0	0	0	10	0	19	-	-
Fremont	-	-	-	-	-	-	-	-	-	-	30	0	-	-	-
Leoti FC 6610	20	8	0	0	0	0	0	0	0	0	0	0	-	-	25

Variety[a]	Woodward								Perkins				Chillicothe		
	1940[b]		1941[b]		1942[c]		1943[c]		1942[c]		1943[c]		1942[d]	1943[d]	1943[e]
	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thin	Thin	Thin
Sorgo (Cont'd)															
Leoti SA 259	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76
Leoti x kafir SA 5178 C-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Cron's Orange	8	0	0	0	0	0	0	0	0	0	10	0	-	-	-
Kansas Orange FC 9108	0	0	0	0	0	0	0	0	0	0	0	0	-	2	2
Colman	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
African Millet	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Sourless FC 9111	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0
Ex. Early Sumac SA 340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Early Sumac Dalhart Strain	8	8	0	0	0	0	0	0	-	-	-	-	-	-	-
" " Kansas Strain	2	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Sumac SPI 35038	0	0	0	0	0	0	0	0	0	0	0	0	2	-	-
" FC 1712	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
" SPI 63715	0	0	0	0	0	0	0	0	-	-	0	0	-	-	-
CI 660	0	0	0	0	0	0	0	0	-	-	0	0	-	-	-
Yellow Sumac Wd. 97-14	2	0	0	0	0	0	0	0	-	-	0	0	-	-	-
Rox Orange	0	0	0	0	0	0	0	0	-	-	0	0	-	-	-
Colliers FC 2333	0	0	0	0	0	0	0	0	-	-	0	0	-	-	0
Rex FC 16185	2	0	0	0	0	0	0	0	-	-	0	0	-	-	6
White African	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
Wh. African x Honey, SA 287C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Sapling FC 16157	0	0	0	0	0	0	0	0	-	-	0	0	-	-	0
Straightneck FC 16160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Sugar Drip	0	0	0	0	0	0	0	0	-	-	0	0	-	-	-
Honey Drip	0	0	0	0	0	0	0	0	--	-	0	0	-	-	-
Gooseneck Ts. 1659	-	-	-	-	-	-	-	-	-	-	0	0	-	-	0
Honey FC 6605	0	0	0	0	0	0	0	0	-	-	0	0	12	-	-
Miscellaneous															
Milo x hegari 10-1	0	0	0	2	0	0	0	0	30	#	-	-	-	-	-
Migari Wd 11-2	8	0	8	0	0	0	0	0	20	#	10	0	-	-	-
Kansas Orange x milo CI 894	20	20	0	0	0	0	10	0	-	-	-	-	-	-	-
Farr's Dwf. White milo	8	8	0	0	0	0	0	0	-	-	-	-	-	-	-
Farr's Dwf. White feterita	2	8	0	0	0	0	0	0	-	-	-	-	-	-	-

Variety[a]	Woodward								Perkins				Chillicothe		
	1940[b]		1941[c]		1942[c]		1943[c]		1942[c]		1943[c]		1942[c]	1943[d]	1943[e]
	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thin	Thin	Thin
Miscellaneous (Cont'd)															
Barr's Dwf. feterita 9	-	-	-	-	-	-	-	-	20	0	0	0	-	-	-
Farr's Dwf. feterita x kafir	-	-	-	-	-	-	-	-	20	50	10	10	-	-	-
Bonar durra x D.Y.milo SA 1343	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Bonita SA 79	-	-	-	-	-	-	-	-	-	-	0	20	-	-	18
Early hegari SA 281	0	2	8	0	0	0	10	0	50	#	30	70	12	15	6
Hegari CI 750	0	0	0	0	0	0	0	10	20	40	0	0	-	-	-
Hegari SPI 34911	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Do.Dwf.Yellow hegari SA 1306	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
Hegari x milo SA 7088-2-6	-	-	-	-	-	-	-	-	-	-	-	-	24	10	2
White Chiltex	8	2	0	0	0	0	0	0	80	70	70	100	-	-	-
Chiltex CI 874	8	0	0	0	10	0	0	10	40	#	40	80	-	95	36
Premo CI 873	0	0	2	0	0	0	0	0	0	#	0	0	-	-	-
Ajax CI 968	0	0	0	0	0	0	0	0	0	#	40	30	-	10	-
Kaferita CI 811	0	2	0	0	0	0	20	0	0	0	0	0	-	-	-
" CI 812	2	0	0	0	0	0	0	0	0	10	0	0	-	-	-
Red Amber x feterita	2	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Leoti x feterita HC 3429	0	0	2	0	0	0	20	30	30	40	0	0	-	-	-
Dwf. Brown Kaferita	20	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Ks.Or.xDwf.Yel.milo KS 24-136	-	-	0	0	0	0	0	0	0	0	0	0	-	-	-
Greeley CI 972	8	8	0	0	0	0	0	10	30	50	20	0	-	-	-
Cheyenne	0	2	0	0	0	0	0	0	40	70	40	10	-	-	-
Improved Coes CI 1104	2	0	0	0	0	0	10	0	0	0	40	0	-	-	-
Tricker	-	-	0	0	0	0	0	0	10	0	20	10	-	-	-
Highland kafir CI 1105	2	8	0	0	0	0	0	0	-	-	-	-	-	-	-
Tall White Sorghum CI 787	0	2	0	0	0	0	0	0	0	0	0	0	-	-	-
Corneous Sorghum SPI 61666	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Shallu CI 85	0	0	8	0	0	0	0	0	0	0	0	0	-	-	-
White Darso Okla. 101	0	0	0	0	0	0	0	0	0	0	20	0	-	-	-
White Darso Wd. 4812	8	0	0	0	0	0	0	0	20	0	-	-	-	-	-
" " 52-29	8	2	0	0	0	0	0	0	0	0	-	-	-	-	-
Yellow " 36-12	20	0	0	0	0	0	0	0	0	0	-	-	-	-	-
Red " 32-13	8	2	-	-	-	-	-	-	0	0	-	-	-	-	-
Darso CI 615	20	8	0	0	0	0	-	-	-	-	-	-	-	-	-
Darso SA 301	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Haston's White Darso	-	-	-	-	-	-	-	-	-	-	10	0	-	-	-
White Darso 615 x 71-6-2	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
Yellow Darso 615 x 71-7-39-7	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
Okla. Res. Darso 1	-	-	-	-	-	-	10	0	-	-	0	0	-	-	-

Variety[a]	Woodward								Perkins				Chillicothe		
	1940[b]		1941[b]		1942[c]		1943[c]		1942[c]		1943[c]		1942[d]	1943[d]	1943[e]
	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thin	Thin	Thin
Miscellaneous (Cont'd)															
Sagrain	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Schrock CI 616	0	0	0	0	0	0	0	0	20	20	-	-	-	-	-
Schrock x kafir SA 73-3-1-3-1-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Grohoma CI 920	2	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Groff	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-
Bird Proof kafir CI 662	0	2	2	0	10	10	0	0	10	70	20	0	-	-	-
Dwarf Freed CI 971	0	0	0	0	0	0	0	0	0	10	40	0	-	-	-
Freed CI 350	8	0	0	0	0	0	0	0	60	#	0	0	-	-	-
Big Seeded Sorghum CI 692	0	0	0	0	-	-	0	0	-	-	0	0	-	-	-

a Explanation of Symbols Used in Variety Column of Table 1

Ts.---Texas Station number
La ---Lawton Strain
CI ---Division of Cereal Crops and Diseases
FC ---Division of Forage Crops and Diseases
SPI ---Division of Seed and Plant Introductions
KS ---Kansas Strain
HC --- Hays Cereal Number
SA --- Sorghum Accession Number
GC --- Garden City Strain
Dal --- Dalhart Strain
Wd.--- Woodward Strain

b Symbols used should be interpreted as follows:
2 represents a trace (1 to 4%)
8 represents some (5 to 10%)
20 represents common (more than 10%)

c In each row 20 plants were cut and examined - 10 in the thick spacing and - 10 in the thin spacing. The figure given in the table represents the percentage of diseased plants.

d Figures in Table represent percentage of diseased plants. Data taken from "Variety - Date of Seeding" test.

e Numbers in Table represent percentage of diseased plants. Data taken from "Charcoal Rot" nursery.

Reliable reading impossible due to other injuries or absence of plants.

Data from Woodward in 1940 furnished by Mr. J. B. Sieglinger, Senior Agronomist, U. S. D. A.

All data from Chillicothe furnished by Dr. E. C. Tullis, Pathologist, Division of Cereal Crops and Diseases, U. S. D. A. in cooperation with the Texas Agricultural Experiment Station.

All data from Perkins and from Woodward 1941 to 1943 inclusive, furnished by Dr. D. E. Hoffmaster, Assistant Plant Pathologist, Oklahoma Agricultural Experiment Station, Stillwater, Oklahoma.

This study was carried out at 3 different agricultural experiment stations: (1) The United States Southern Great Plains Field Station at Woodward, Oklahoma; (2) Texas Sub-station No. 4, at Chillicothe, Texas; and (3) The Oklahoma Agricultural Experiment Station Farm at Perkins, Oklahoma. The results of this 4-year study are summarized in Table 1.

An examination of the table reveals several interesting points. It shows that there is a tendency towards resistance in some of the large groups such as the sorgos and kafirs, particularly the blackhull kafirs, and susceptibility in other groups such as the kafir-milos which are moderately susceptible, and the milos which, as a group, are most susceptible.

It is also evident that early-maturing varieties (such as Sooner Milo) are more susceptible than late-maturing varieties. This may be because the earlier maturing varieties reach maturity during a time when growing conditions may be more adverse for the host and more favorable for the fungus than those encountered at maturity by the late maturing varieties.

Furthermore, the data from Woodward and Perkins indicate that widely (thin) spaced plants are only about one-half as susceptible as closely spaced (thick) plants, which are competing for the limited amount of soil moisture. This is contrary to some previous reports on differences in spacing.

It is impossible from the data now available to recommend certain varieties for localities in which Macrophomina dry rot is a limiting factor. It does appear that the plant breeder in due time may be able to develop varieties that are sufficiently resistant to produce profitable yields in those localities where the disease is now most destructive.

COOPERATION BETWEEN THE OKLAHOMA AGRICULTURAL EXPERIMENT STATION AND THE DIVISION OF CEREAL CROPS AND DISEASES, BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING, AGRICULTURAL RESEARCH ADMINISTRATION, U. S. DEPARTMENT OF AGRICULTURE.

DISEASES OF FORAGE CROPS OBSERVED IN NORTHERN NEW ENGLAND

R. C. Cassell and K. W. Kreitlow

A survey of forage crops was made September 18 to 23, 1944, which covered the territory of Northern Massachusetts, Vermont, New Hampshire, and Maine as far north as Guilford and Milo.

The great bulk of the forage crops in Northern New England are mixed plantings made up largely of timothy and red clover. There are also a great many bentgrass-Kentucky bluegrass pastures which are usually predominantly bentgrass, Agrostis spp. There is a surprisingly small amount of alfalfa in Northern New England. The largest concentration was found north of Rutland in Western Vermont, especially in Grand Isle County. This area is influenced by the tempering effect of Lake Champlain.

Following is a list of the diseases of forage crops found in Northern New England and their general prevalence and severity.

AGROPYRON REPENS, QUACK GRASS

Puccinia graminis, stem rust. One collection was made in Vermont (1)[1]

[1] Number in ( ) represents the number of collections made in the state.

and one was made in New Hampshire (1). Prevalence averaged about 60%, and the severity ranged from light to moderate.

AGROSTIS spp., BENTGRASSES

Puccinia coronata (var. festucae?), crown rust, was found in 9 locations in the 4 States, Vermont (3), New Hampshire (2), Maine (3), and Massachusetts (1). Average prevalence was about 35%, and the severity averaged moderate.

Puccinia graminis agrostidis, stem rust, was found in 3 locations in Vermont (1) and Maine (2). Average prevalence was about 25%, and the severity was generally light to moderate. In one 3-acre field there were a few areas of severe killing.

Scolecotrichum graminis, brown stripe, was found in scattered fields in the 4 States. One particularly heavy infection was found throughout a field in Grand Isle, Vermont.

Urocystis agropyri, smut. A trace of infection was found on only a few of the plants in 2 locations in Vermont.

DACTYLIS GLOMERATA, ORCHARD GRASS

Ascochyta sp., leaf spot. Only a trace was found in one location in Vermont.

Puccinia graminis, stem rust. A light infection was found on about 50% of the plants in one meadow in Vermont.

Scolecotrichum graminis, brown stripe, was found in 4 locations in Vermont. Prevalence averaged about 10%, and the severity ranged from light to moderate.

Stagonospora subseriata var. maculata, leaf spot, was found in 4 locations in Vermont (3) and New Hampshire (1). Average prevalence was about 25%, and the severity averaged moderate.

DIGITARIA ISCHAEMUM, SMOOTH CRABGRASS

Ustilago (rabenhorstiana?), smut. A moderate infection was found on about 30% of the plants in one location in Massachusetts.

FESTUCA ELATIOR, MEADOW FESCUE

Helminthosporium dictyoides, net blotch, was found generally present on meadow fescue in 4 locations in Vermont and one location in Massachusetts.

Puccinia coronata var. festucae, crown rust, was found in 6 places in Vermont (5) and Maine (1). Average prevalence was about 40%, and the severity ranged from light to heavy.

MELILOTUS ALBA, SWEET CLOVER

Ascochyta sp., stem blotch. A trace was found in one location in Vermont.

MEDICAGO SATIVA, ALFALFA

Ascochyta imperfecta, black stem and leaf spot, was found in 4 fields in Vermont (2), New Hampshire (1), and Maine (1). Average prevalence was about 25%, and the average severity moderate.

Peronospora trifoliorum, downy mildew, was found in one field in Vermont. Prevalence was about 15%, and the severity light.

Phoma sp., leaf spot, was collected in one field in Vermont. Only a trace was present.

Pseudopeziza medicaginis, leaf spot, was found in 9 fields in the 4 States, Vermont (3), New Hampshire (1), Maine (4), and Massachusetts (1). Average prevalence was about 50%, and the severity ranged from light to heavy.

Stemphylium botryosum, leaf spot. Only a trace was found in one field in Vermont.

PHLEUM PRATENSE, TIMOTHY

Colletotrichum graminicolum, anthracnose, was collected in one field in Vermont. Only a trace was present.

Heterosporium phlei, leaf spot. A very heavy infection was found on 100% of the plants in one meadow in Vermont.

Puccinia graminis var. phlei-pratensis, stem rust, was found in 3 Vermont fields. Average prevalence was about 75%, and the severity moderate to heavy.

Sclerotrichum graminis, brown stripe, was found in 2 fields in Vermont (1) and New Hampshire (1). Only a trace was found in the Vermont field, but a light to moderate infection was found on 75% of the plants in the New Hampshire location.

POA PRATENSIS, KENTUCKY BLUEGRASS

Erysiphe graminis, powdery mildew, was collected in 4 fields in Vermont (2), New Hampshire (1), and Maine (1). Average prevalence was about 15%, and the severity ranged from very light to heavy.

Helminthosporium vagans, leaf spot, was found in 13 locations in the 4 States, Vermont (4), New Hampshire (3), Maine (3), and Massachusetts (3). Average prevalence was about 40%, and the average severity moderate.

Puccinia poae-sudeticae, leaf rust, was found in 5 locations in the 4 States, Vermont (2), New Hampshire (1), Maine (1), and Massachusetts (1). Average prevalence in the Vermont pastures was about 10%, and the severity light to moderate. Only a trace was found in the other locations.

Septoria sp., leaf spot, was found as a trace only in one pasture in Maine.

Urocystis agropyri, smut. A single collection was made in New Hampshire. Prevalence was about 5%, and the severity light.

Ustilago striaeformis, smut, was found in 6 locations in the 4 States, Vermont (2), New Hampshire (1), Maine (2), and Massachusetts (1). Average prevalence was about 5%, and the severity light.

TRIFOLIUM HYBRIDUM, ALSIKE CLOVER

Cercospora zebrina, leaf spot, was found in 2 fields in Vermont (1) and New Hampshire (1). Average prevalence was about 5%, and the average severity light.

Erysiphe polygoni, powdery mildew, was collected in 2 fields in Vermont (1) and Massachusetts (1). Average prevalence was about 10%, and the average severity light.

Polythrincium trifolii, sooty blotch, was found in 2 fields in New Hampshire (1) and Massachusetts (1). Average prevalence was about 5%, and the severity light.

Stemphylium sarcinaeforme, target leaf spot. A trace only was found in one location in Vermont.

Uromyces hybridi, rust, was found in 2 fields in Vermont (1) and Massachusetts (1). Average prevalence was about 50%, and the severity averaged moderate.

TRIFOLIUM MEDIUM, ZIG ZAG CLOVER

Cercospora zebrina, leaf spot, was collected in small amounts from the experimental plots in Burlington, Vermont.

Erysiphe polygoni, powdery mildew, was scattered promiscuously throughout the plots at Burlington, Vermont.

(There may have been a slight mixture of alsike clover with the zig zag clover, so the diseases of zig zag clover will be rechecked.)

TRIFOLIUM PRATENSE, RED CLOVER

Cercospora zebrina, leaf spot, was collected from 7 fields in Vermont (4), New Hampshire (1), and Maine (2). Light infections on about 5% of the plants were present in Vermont and Maine, but there was a moderate infection on about 50% of the plants in New Hampshire.

Erysiphe polygoni, powdery mildew, was omnipresent in varying proportions throughout the 4 States.

Polythrincium trifolii, sooty blotch, was found in 4 fields in Vermont (2) and New Hampshire (2). Average prevalence was about 5%, and the average severity moderate.

Pseudopeziza trifolii, leaf spot, was found in 3 fields in Vermont (2) and New Hampshire (1). A light infection was found on an average of 30% of the plants in the 2 Vermont fields, while in New Hampshire there was a light infection on about 5% of the plants.

Stemphylium sarcinaeforme, target leaf spot, was found in 16 fields in the 4 States, Vermont (6), New Hampshire (3), Maine (6), and Massachusetts (1). Except for Massachusetts where only a trace was found, the average prevalence was about 25%, and the average severity moderate.

Uromyces fallens, rust, was found in 10 fields in Vermont (4), New Hampshire (1), and Maine (5). Average prevalence was about 60%, and the average severity moderate.

Mosaic (virus) was found in 10 fields in Vermont (5), New Hampshire (1), and Maine (4). Only a trace was found in New Hampshire. Average prevalence was about 2%, and the severity light in the other 2 States.

TRIFOLIUM REPENS, WHITE AND LADINO CLOVERS

Ascochyta (caulicola?), leaf spot. A trace only was found in 3 fields in Vermont (1), Maine (1), and Massachusetts (1).

Cercospora zebrina, leaf spot, was found as a trace in one location in New Hampshire.

Erysiphe polygoni, powdery mildew, was observed as a light infection on about 10% of the plants in one field in Vermont.

Polythrincium trifolii, sooty blotch, was found in 6 fields in Vermont (3) and New Hampshire (3). Average prevalence was about 5%, and the average severity moderate.

Pseudopeziza trifolii, leaf spot, was found as a trace in one Vermont field, and as a moderate to heavy infection on about 5% of the plants in one Massachusetts field.

Pseudoplea trifolii (Sphaerulina trifolii), (pepper) leaf spot, was found in 16 fields of the 4 States, Vermont (3), New Hampshire (2), Maine (8), and Massachusetts (3). Average prevalence was about 50%, and the average severity about moderate.

Uromyces trifolii-repentis, rust, was found as a trace in one field in Massachusetts, and as moderate infection on about 40% of the plants in 2 fields in Vermont.

Mosaic (virus) was observed on a very few plants in one field in Vermont.

VICIA sp., VETCH

Erysiphe polygoni, powdery mildew. A heavy infection was found on about 40% of the plants in one field in Vermont.

Uromyces (fabae?), rust. A moderate to heavy infection was found on about 40% of the plants in 6 locations in Vermont.

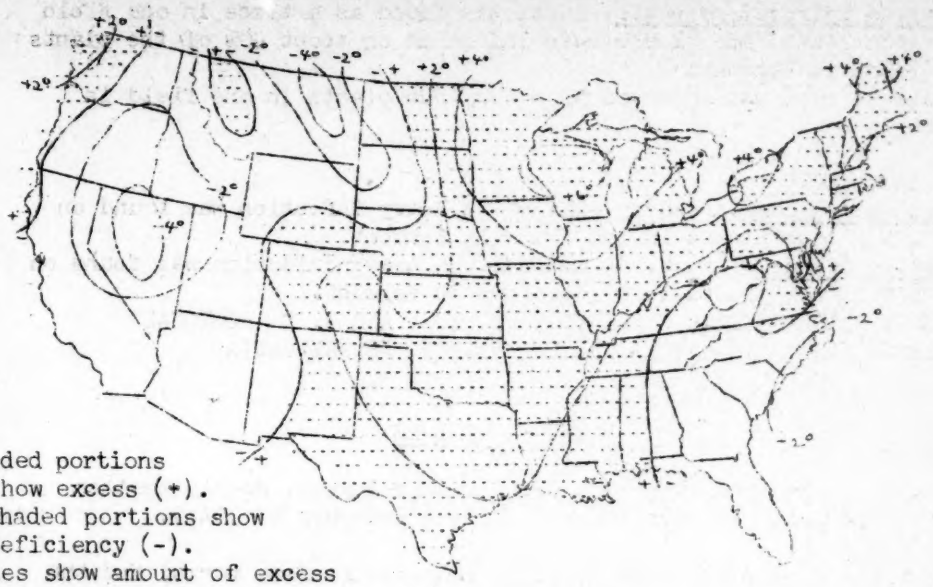
EMERGENCY PLANT DISEASE PREVENTION PROJECT, AND U. S. REGIONAL PASTURE RESEARCH LABORATORY, STATE COLLEGE, PENNSYLVANIA

NOVEMBER WEATHER

(From U. S. Department of Commerce Weather Bureau, Weekly Weather and Crop Bulletin for week ending December 5, 1944).

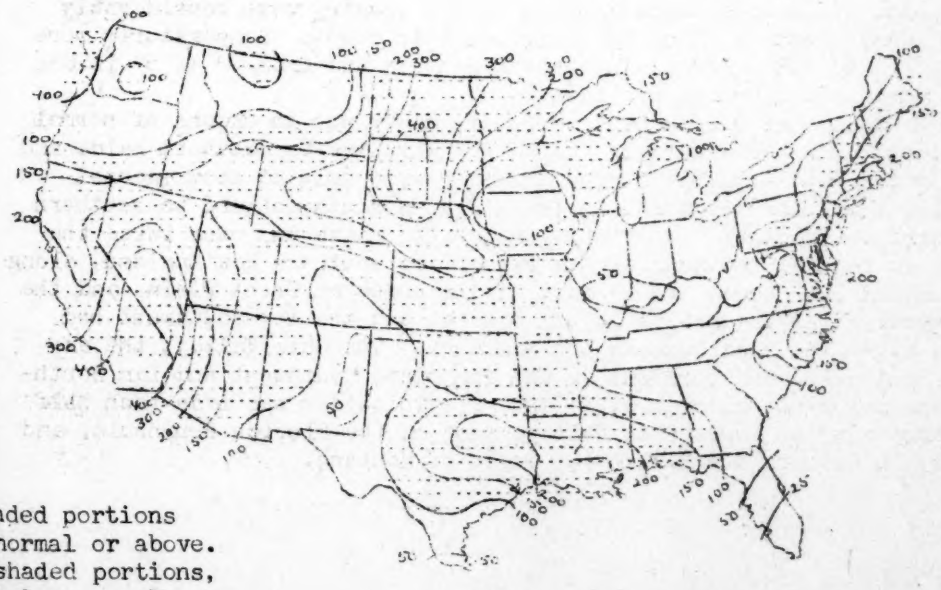
Maps 1 and 2 show the departures of temperature from normal and the percentage of normal precipitation for November 1944. Map 1 shows that temperatures were mostly above normal in New England and New York as well as in most middle Atlantic sections and in a wide-spread area from the Lake region southwestward. The departures from normal were mostly above 2° in central sections, ranging up to as many as 7° in the western Lake region. Slightly subnormal temperatures were recorded in the Southeast, while most western parts of the country were considerably below normal, except along the north Pacific coast. Temperatures were from 4° to 6° below normal in eastern Montana and from 2° to 5° in the Great Basin and adjacent sections.

Map 2 shows that precipitation for the month was in excess of normal in Atlantic coastal districts from North Carolina to southern Maine and also in central localities, with a rather wide belt of above-normal precipitation from the northern Great Plains southwestward to southern California. The total precipitation for the month was over twice the normal in coastal sections of New Jersey and southern New England, along the central Gulf coast and in most of the northern Great Plains and the Southwest. Some localities in the Dakotas and the far Southwest had over 4 times the usual amount for November. The Ohio Valley, the extreme Southeast, and portions of the immediate Southwest and far Northwest had below-normal precipitation. Precipitation was less than half the normal in the lower Ohio Valley, most of the Florida Peninsula, and locally in eastern New Mexico and parts of Montana.



Shaded portions show excess (+).
Unshaded portions show deficiency (-).
Lines show amount of excess or deficiency.

Map. I - Departure of mean temperature from the normal for November, 1944.



Shaded portions normal or above.
Unshaded portions, below normal.

Map. II - Percentage of normal precipitation, for November 1944.